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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,391	05/24/2001	Gregory J. Wilson	29195.8157US2	4952

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EXAMINER	
SINES, BRIAN J	

ART UNIT	PAPER NUMBER
1743	

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/866,391	WILSON ET AL.	
	Examiner	Art Unit	
	Brian J. Sines	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48,60-73 and 88-100* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-8,27-45,60-67,71-73,88-90,94-96,99 and 100* is/are allowed.

6)☒ Claim(s) *9-13,15-17,19-23,25,26,46-48,68,69,91-93,97 and 98* is/are rejected.

7)☒ Claim(s) *14,18,24 and 70* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group I comprising claims 1 – 48, 60 – 73 and 88 – 100 in the reply filed on 4/2/2004 is acknowledged.

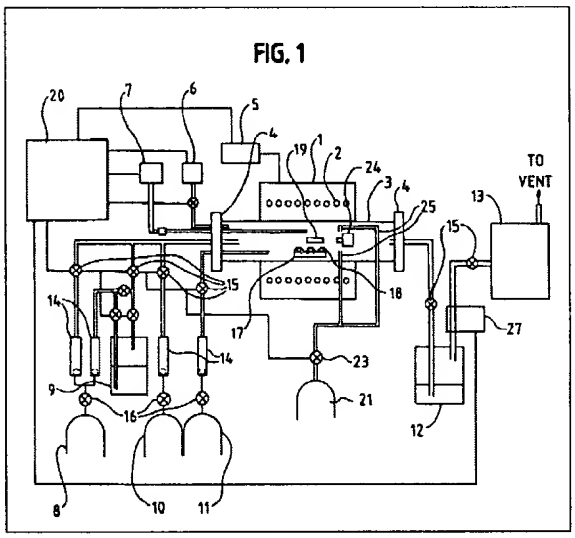
Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 9 – 13, 15 – 17, 19 – 23, 25, 26, 46 – 48, 68, 69, 91 – 93, 97 and 98 are rejected under 35 U.S.C. 102(e) as being anticipated by Lemelson (U.S. Pat. No. 5,871,805 A). Regarding claims 9, 15 – 17, 46 – 48, 91 – 93, 97 and 98, Lemelson anticipates the recited method utilizing a computing system for providing a closed-loop control methodology for a coating process (see for example, col. 7, line 46 – col. 10, line 67). Regarding claim 10, Lemelson anticipates the further step of designating the most recently-produced set of coating parameters, such as for a test blank material, for use in coating subsequent workpieces (see col. 5, line 20 – col. 6, line 54). Regarding claims 11 – 13 and 19 – 23, Lemelson anticipates the use of the recited methodology in silicon semiconductor wafer substrate processing and coating (see col. 15, lines 24 – 54). Regarding claims 68 and 69, Lemelson teaches a system comprising a reactor (1) and associated computer (20) for process control (see col.5, lines 20 – 65; col. 15, lines 19 – 47; figure 1). The Courts have held that apparatus claims must be structurally

distinguishable from the prior art in terms of structure, not function. See *In re Danley*, 120 USPQ 528, 531 (CCPA 1959); and *Hewlett-Packard Co. V. Bausch and Lomb, Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). The Courts have held that the manner of operating an apparatus does not differentiate an apparatus claim from the prior art, if the prior art apparatus teaches all of the structural limitations of the claim. See *Ex Parte Masham*, 2 USPQ2d 1647 (BPAI 1987) (see MPEP § 2114).



Allowable Subject Matter

1. Claims 14, 18, 24 and 70 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 14, the cited prior art neither teach or fairly suggest that the method is performed in an electrolysis chamber having a plurality of anodes, wherein at least a portion of the coating parameters are currents to transmit through identified nodes among the plurality of anodes. Regarding claim 18, the cited prior art neither teach or

fairly suggest the further incorporation of the recited methodology involving the indication of a seed layer thickness prior to the coating of the workpiece. Regarding claim 24, the cited prior art neither teach or fairly suggest the further incorporation of a step of utilizing a sensitivity matrix for mapping changes in attributes to changes in coating parameters expected to produce those changes. Regarding claim 70, the cited prior art neither teach or fairly suggest the further incorporation of the recited memory containing a sensitivity matrix used by the parameter selection subsystem in selecting parameters to be used to deposit coating material onto the selected wafer.

2. Claims 1 – 8, 27 – 34 and 35 – 45, 60 – 67, 71 – 73, 88 – 90, 94 – 96, 99 and 100 are allowed.

The following is an examiner's statement of reasons for allowance: Regarding claim 1, the cited prior art neither teach or fairly suggest the recited method for utilizing a computer system for controlling an electroplating process in which a sequence of workpieces are electroplated with a material each in an electroplating cycle, wherein the control process designates, for each electroplated workpiece, currents supplied to each of a plurality of electroplating anodes. Regarding claims 27 and 34, the cited prior art neither teach or fairly suggest the recited method, and associated apparatus, for use in a computing system for automatically configuring parameters controlling the operation of a deposition chamber to deposit coating material on each of a sequence of at least two wafers to improve conformity with a specified deposition pattern. Regarding claim 35, the cited prior art neither teach or fairly suggest the recited method for use with computing system for constructing a sensitivity matrix usable to adjust currents for a plurality of electrode in an electroplating chamber to improve plating uniformity.

Regarding claim 42, the cited prior art neither teach or fairly suggest the recited computer memory collectively containing a sensitivity matrix data structure relating to a deposition chamber having a plurality of deposition initiators for depositing material on a workpiece having a selected radii, a control parameter being associated with each of the deposition initiators, the data structure comprising a plurality of quantitative entries, wherein each of the entries predict, for a given change in the control parameter associated with a given deposition initiator, the expected change in deposited material thickness at a given radius. Regarding claim 60, the cited prior art neither teach or fairly suggest the recited method for use with a computing system for controlling an electroplating process having multiple steps in an electroplating chamber having a plurality of electrodes. Regarding claim 67, the cited prior art neither teach or fairly suggest the recited method for evaluating a design for an electroplating reactor incorporating the step of applying a sensitivity technique. Regarding claim 71, the cited prior art neither teach or fairly suggest the recited method for use with a computing system for automatically configuring parameters usable to control the operation of a deposition chamber to deposit coating material on a selected wafer in order to optimize conformity with a specified deposition pattern. Regarding claim 88, the cited prior art neither teach or fairly suggest the recited method for constructing a library of deposition process sets for use in controlling a material deposition tool in which multiple control points are controlled in order to control coating material deposition. Regarding claim 94, the cited prior art neither teach or fairly suggest the recited computer memories collectively containing an electroplating current data structure. Regarding claim 96, the cited prior art neither teach or fairly suggest the recited method for use with a computing system for automatically configuring parameters

usable to control the operation of a reaction chamber to electropolish a selected wafer in order to optimize conformity with a specified electropolishing pattern. Regarding claim 99, the cited prior art neither teach or fairly suggest the recited method for use with a computing system for electropolating a microelectronic workpiece incorporating the use of a seed layer profile.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Andricacos et al. teach copper plating on electronic devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines whose telephone number is (571) 272-1263. The examiner can normally be reached on Monday - Friday (11:30 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jill Warden
Supervisory Patent Examiner
Technology Center 1700